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IN THE U.S. PATENT AND TRADEMARK OFFICE

Applicant: Tsuyoshi HIRAMATSU et al.

Appl. No.: 09/936,930

ART UNIT: 1771

Filed: September 19, 2001

Examiner: Victor S Chang

For: PRESSURE SENSITIVE ADHESIVE SHEETS FOR REMOVAL  
OF SOLVENT-CONTAINING SUBSTANCES

DECLARATION UNDER 37 C.F.R. 1.132

Assistant Commissioner for Patents

P.O. Box 1450

Alexandria, Virginia 22313-1450

Sir:

I, Masanobu YONEDA, a citizen of Japan and residing at NITTO DENKO CORPORATION 1-2, Shimohozumi 1-chome, Ibaraki-shi, OSAKA, declare and say that:

I was graduated from master course of department of material engineering, graduate school of engineering, Yamagata University.

From April, 1995 up till the present, I have been engaged in development of pressure-sensitive adhesive tape and relatives since I entered the company.

I am a researcher taking over the research from one of the inventors of the above-identified application and am familiar with the subject matter thereof.

I have read the Official Action mailed on July 28, 2004 and the references cited therein and am familiar with

the subject matter thereof.

I declare that the following experiment was performed under my direction.

#### EXPERIMENT:

##### EXAMPLE A

A pressure-sensitive adhesive sheet was prepared by applying an acrylic pressure-sensitive adhesive to a thickness after drying of 10  $\mu\text{m}$  to one side of a polyethylene film (substrate) 0.06 mm thick, and drying the applied acrylic pressure-sensitive adhesive. The acrylic pressure-sensitive adhesive was composed of 100 parts by weight of a copoly(butyl acrylate/acrylonitrile/acrylic acid) (weight ratio: 85/15/2.5) and 20 parts by weight of an isocyanate crosslinking agent.

The above-prepared pressure-sensitive adhesive sheet was cut to a size of 30 mm times 30 mm (30 mm x 30 mm), was weighed, was immersed in a solvent [diethylene glycol monobutyl ether acetate/diethylene glycol monobutyl ether (weight ratio: 9/1)] for 1 second, was taken out from the solvent, the solvent deposited on a surface of the sheet was immediately wiped off with a waste rag, the sheet was then weighed again, and the solvent absorption per unit area was calculated to find to be 10  $\text{g}/\text{m}^2$ . Separately, 5  $\text{g}/\text{m}^2$  of the solvent was applied to a poly(ethylene terephthalate) film using a wire bar, the pressure-sensitive adhesive sheet having the same size as above was stuck to the film carrying the solvent to thereby permit the pressure-sensitive adhesive layer of the sheet to absorb 5  $\text{g}/\text{m}^2$  of the solvent, and the 180 degree peel strength of the sheet was determined according to the

method described in JIS Z 0237. Namely, the pressure-sensitive adhesive sheet after absorbing 5 g/m<sup>2</sup> of the solvent was stuck to a stainless steel plate (a SUS 430BA plate: refer to No. ①) as an adherend by a reciprocating motion of a 2-kg rubber roller, and after 1-minute the sheet was peeled off at the rate of 300 mm/min to measure the tackiness of the sheet. As a result, the tackiness (180 degree peel strength) of the pressure-sensitive adhesive sheet was 0.11 N/25-mm, and no stain was observed in the stainless steel plate (refer to No. ②).

#### EXAMPLE B

A pressure-sensitive adhesive sheet was prepared by applying a mixture comprising 100 parts by weight of an acrylic pressure-sensitive adhesive and 10 parts by weight of a heat expansion microcapsule ("Matsumoto microsphere F-301D" provided by Matsumoto-yushi Kabushikigaisha) to one side of a polypropylene film (substrate) 0.04 mm thick, and allowing the microcapsule to the expansion by heating to form a foam layer 0.12 mm thick.

The above-prepared pressure-sensitive adhesive sheet was cut to a size of 30 mm times 30 mm (30 mm x 30 mm), was weighed, was immersed in a solvent [diethylene glycol monobutyl ether acetate/diethylene glycol monobutyl ether (weight ratio: 9/1)] for 1 second, was taken out from the solvent, the solvent deposited on a surface of the sheet was immediately wiped off with a waste rag, the sheet was then weighed again, and the solvent absorption per unit area was calculated to find to be 16 g/m<sup>2</sup>. Separately, 5 g/m<sup>2</sup> of the solvent was applied to a poly(ethylene terephthalate) film using a wire bar, the pressure-sensitive adhesive sheet having the same size as above was

stuck to the film carrying the solvent to thereby permit the pressure-sensitive adhesive layer of the sheet to absorb 5 g/m<sup>2</sup> of the solvent, and the 180 degree peel strength of the sheet was determined according to the above-mentioned method. As a result, the tackiness (180 degree peel strength) of the pressure-sensitive adhesive sheet was 0.07 N/25-mm, and a stain was observed in the stainless steel plate (refer to No. ③ and a photo).

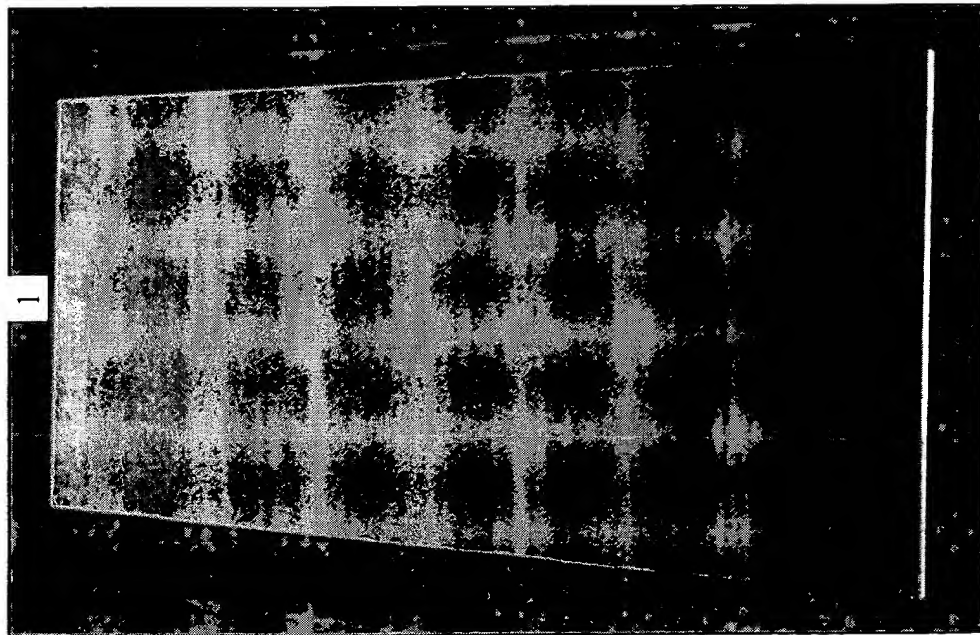
I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the above-identified application or any patent issuing thereon.

This 29th day of July, 2005

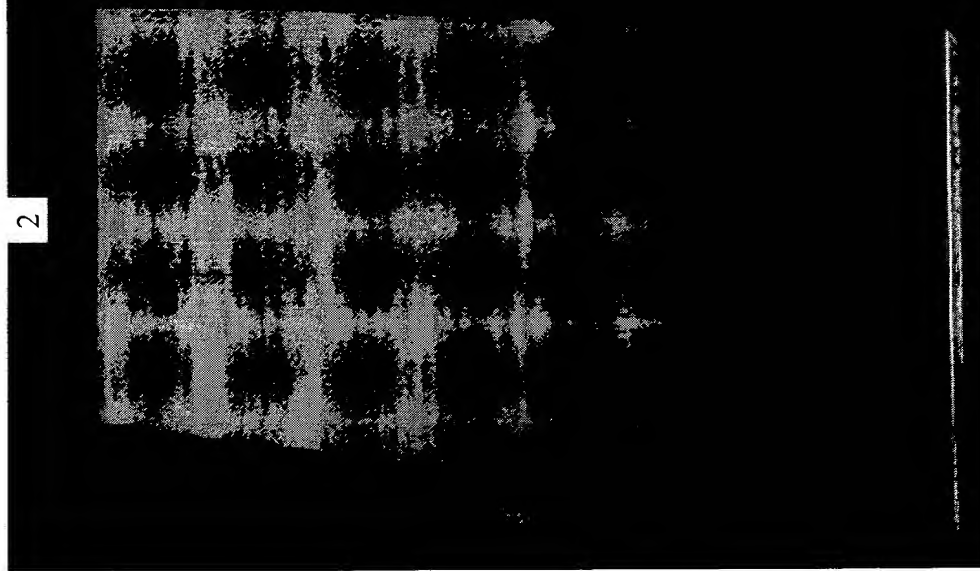
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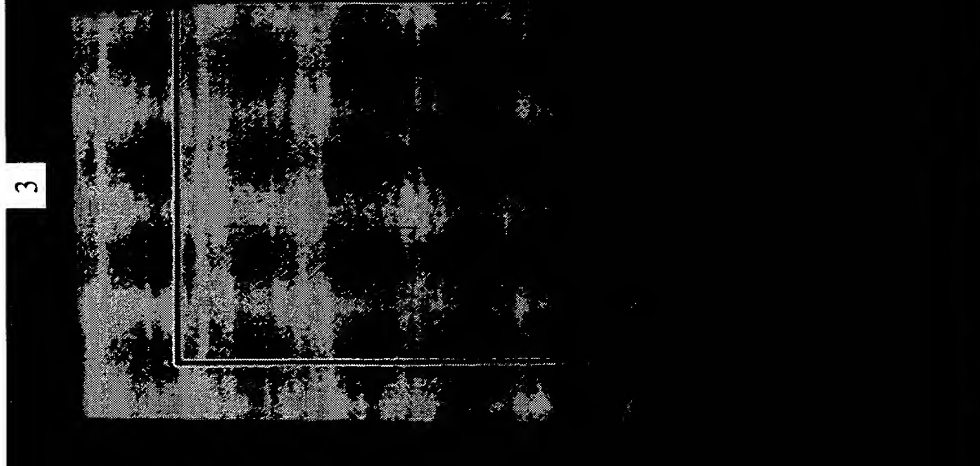
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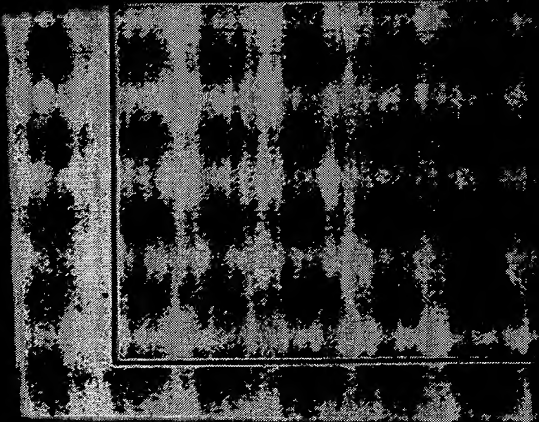


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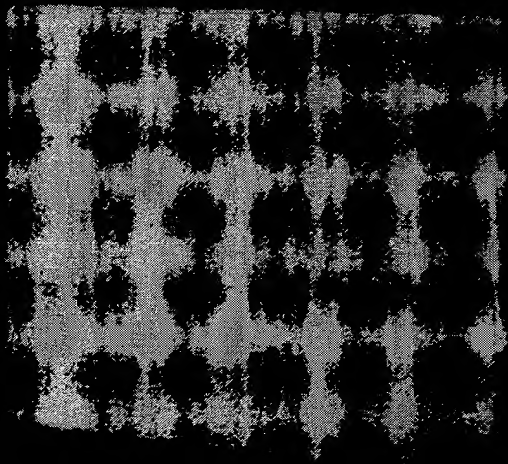




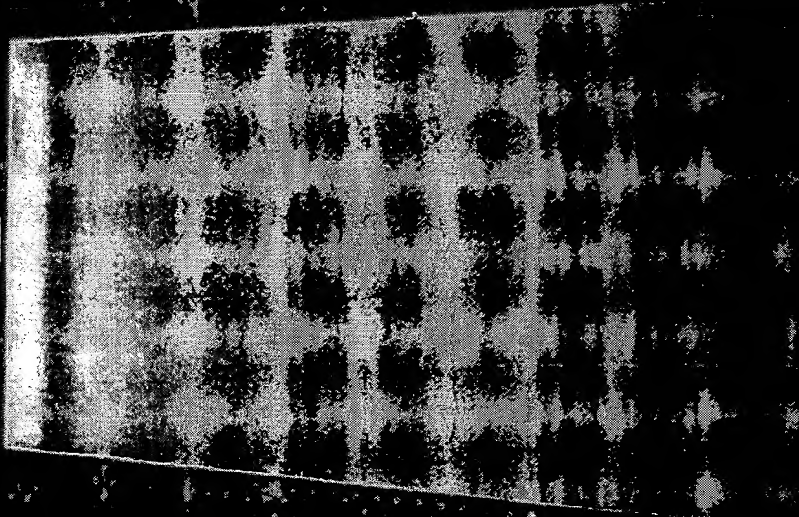
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